

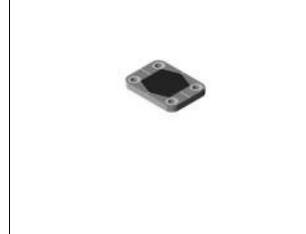
#### Features

- LO & RF: 2.0 TO 10.0 GHz
- IF: DC TO 2.0 GHz
- LO DRIVE: +20 dBm (NOMINAL)
- MICROSTRIP INTERFACE

#### Description

The MC4120 is a double balanced mixer, designed for use in military, commercial and test equipment applications. The design utilizes Schottky ring quad diodes and broadband soft dielectric and ferrite baluns to attain excellent performance. This mixer can also be used as a phase detector and/or bi-phase modulator since the IF port is DC coupled to the diodes. The use of high temperature solder and welded assembly processes used internally makes it ideal for use in manual, semi-automated assembly. Environmental screening available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.

Product Image



## **Ordering Information**

Part Number	Package		
MC4120	Open Carrier		
MC4120-2	Open Carrier		

#### Electrical Specifications: $Z_0 = 50\Omega$ Lo = +20 dBm (Downconverter application only)

Parameter	Test Conditions	Units	Typical	Guaranteed	
Farameter	Test Conditions			+25°C	-54° to +85°C
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 4 to 8 GHz, fL = 4 to 8 GHz, fI = 0 to 1 GHz fR = 3 to 9 GHz, fL = 3 to 9 GHz, fI = 0 to 1.5 GHz fR = 2 to 10 GHz, fL = 2 to 10 GHz, fI = 0 to 2 GHz	dB dB dB	5.8 6.7 7.3	6.5 7.5 8.0	7.0 8.0 8.5
Isolation, L to R (min)	fR = 4 to 8 GHz fR = 3 to 9 GHz fR = 2 to 10 GHz	dB dB dB	35 25 25	28 18 18	25 16 16
Isolation, L to I (min) fR = 4 to 8 GHz   fR = 3 to 9 GHz fR = 2 to 10 GHz		dB dB dB	28 25 20	20 15 11	18 13 9
Isolation, R to I (min) fL = 2 to 10 GHz		dB	30		
1 dB Conversion Comp.	fL = +20 dBm	dBm	+12		
fR1 = 3.9 GHz at -5 dBm, fR2 = 3.92 at -5 dBm, fL = 4.2 GHz at +20 dBm fR1 = 7.4 GHz at -5 dBm, fR2 = 7.42 at -5 dBm, fL = 6.4 GHz at +20 dBm		dBm dBm	+20 +21		

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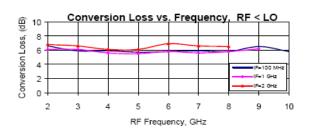
Rev. V3

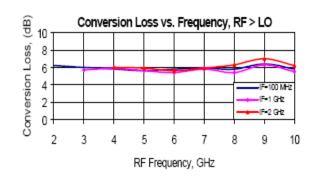


Rev. V3

## **Open Carrier Double-Balanced Mixer** For Microwave Telecommunications

## **Typical Performance Curves**





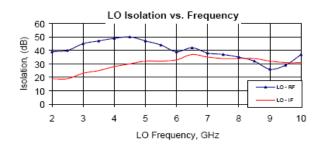
RF - IF Isolation vs. Frequency

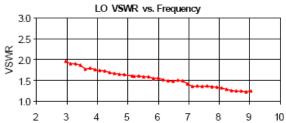
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50

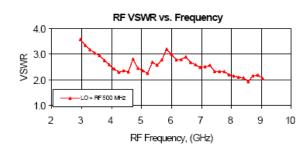
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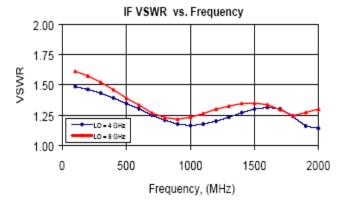




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Isolation, (dB) 20 10 0 2 3 5 6 7 8 9 4 10 RF Frequency, GHz



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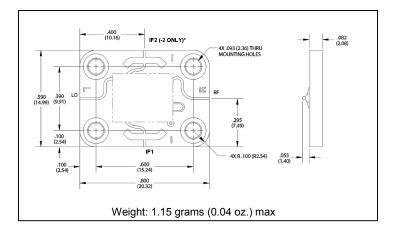
# Open Carrier Double-Balanced Mixer For Microwave Telecommunications

Rev. V3

### **Absolute Maximum Ratings**

Parameter	Absolute Maximum		
Operating Temperature	-40°C to +85°C		
Storage Temperature	-65°C to +100°C		
Peak Input Power	+20 dBm max @ +25℃ +17 dBm max @ +85℃		
Peak Input Current	50 mA DC		

## **Outline Drawing: Open Carrier \* MC4120**



\*For the base model, only IF1 port is connected. For the -"-2" model, only IF2 port is connected.

\* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

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